



In the photo, the model is demonstrating use of the Baro-Cuff, a system typical of that developed for a cardiovascular study of weightless astronauts; it may help people who suffer from congestive heart failure or diabetes. The astronaut experiment was conceived by Veterans Administration Dr. Dwain L. Eckberg; the equipment was developed by Engineering Development Laboratory (EDL), Newport News, Virginia for use on the Spacelab 4 mission as part of a broader Space Shuttle Life Science Experiments program. EDL then conducted an internal research and development program to reduce the complexity of the system and adapt it to Earth-based medical research applications.

During space flight, astronauts experience greater than usual blood pressure and heart rate instability, which sometimes induces postflight lightheadedness or even momentary blackout, temporary symptoms that gradually disappear, suggesting that weightlessness may impair the body's normal blood pressure controls. In the Spacelab 4 investigation, the Baro-Cuff will be used to study "resetting" of blood pressure reflex controls. A silicone rubber chamber strapped to the neck, the Baro-Cuff will stimulate the carotid arteries by electronically-controlled application of pressure or suction.

Patients with congestive heart failure, chronic diabetes mellitus and other conditions also experience abnormal blood pressure reflex controls. As a medical research tool, the Baro-Cuff will be used to study blood pressure controls and the results of stimulation in such patients.

In 1985, EDL delivered its first Model E-2000 Baro-Cuff System to the Veterans Administration Hospital in Gainesville, Florida, where it is being used in kidney function research. The company has also developed and sold specialized configurations for use by U.S. medical colleges in clinical investigations and is marketing the system to international researchers in the field of cardiovascular physiology. ▲